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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,014	12/11/2003	John G. Nunan	DP-311313	2369

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EXAMINER	
MERKLING, MATTHEW J	
ART UNIT	PAPER NUMBER
1709	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/734,014	NUNAN, JOHN G.	
	Examiner	Art Unit	
	Matthew J. Merkling	1709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *14-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/11/03 and 4/27/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-13 and 25) in the reply filed on 5/11/07 is acknowledged.

Information Disclosure Statement

2. The examiner considered the European search report (dated March 21, 2005) but lined through it as it is not a published document available to the public and will not be listed on the face of the patent if one is to be issued.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nunan ("Impact of Pt-Rh and Pd-Rh Interactions on Performance of Bimetal Catalysts").

Regarding claims 1-4, Nunan discloses an exhaust treatment device (page 1, col. 2 lines 6-16), comprising:

a substrate (page 2, col. 2 lines 7-10);

a catalyst layer deposited on the substrate (page 2, col. 2 lines 7-10), the catalyst layer comprising a first catalyst metal (Pd) and a second catalyst metal (Rh) (page 3 col. 2, final paragraph); and

wherein the first catalyst metal and the second catalyst metal are different and are palladium and rhodium (page 3, col. 2, final paragraph).

Regarding the claimed feature of the percentage of 'non-alloyment under alloying conditions' in claims 1, 3 and 4, there is no indication either in the claims or the specification that the prior art (Nunan) would not also contain this property. The process of making the claimed catalyst (according to the specification) is substantially identical to the prior art (Nunan, where Pd and Rh salts are slurried together and washcoated on the substrate, page 1, col. 2 'CATALYST FORMULATIONS') and it is reasonable to assume that it would contain the same "non-alloyment under alloying conditions' properties of the claimed invention. Something that is old does not become patentable upon discovery of a new property (see MPEP §2112).

Where the claimed and prior art product(s) are identical or substantially identical, or are produced by identical or substantially identical process(es) the burden of proof is on applicant to establish that the prior art product(s) do not necessarily or inherently possess the characteristics of the instantly claimed product(s), see In re Best, 195 USPQ 430.

Regarding claims 5 and 6, Nunan discloses a palladium/rhodium ratio of 5/1 (page 2, col. 1 lines 6-7).

5. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nunan ("Impact of Pt-Rh and Pd-Rh Interactions on Performance of Bimetal Catalysts") in view of Fujitani et al. (US 4,239,656).

Regarding claims 7 and 8, Nunan, as discussed in claim 1 above, discloses all of the claim limitations including the catalyst layer comprising an aluminum oxide (Al_2O_3, page 1, col. 2 'CATALYST FORMULATIONS') and an oxygen storage component (cerium, page 1, col. 2 'CATALYST FORMULATIONS').

Nunan fails to teach the average pore diameters of the aluminum oxide and oxygen storage component are in the range of 150Å – 1000Å and 50% to 80% of the pore volume is based on the volume of pores from 180Å – 800Å.

Fujitani also discloses a catalyst for purifying exhaust gases and a carrier for the catalyst (see title).

Fujitani teaches a catalyst support (γ-Al_2O_3, col. 10 lines 65-68) with an oxygen storage component (cerium, col. 10 lines 65-68) and an average pore diameter of 200Å (0.02 μm, col. 10 lines 65-68). Fujitani also teaches the pore diameter to the pore volume distribution in Fig. 2 of this catalyst. It is clear to see from this graph, that 50% - 80% of the total volume comes from the pore with diameters in the range of 180Å – 800Å. Fujitani teaches this catalyst and structure this as a successful way of removing NO_x, CO, and HC from exhaust gasses (see Table 9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the catalyst support with the pore diameter and total pore volume to pore size distribution of Fujitani in the exhaust treatment device of Nunan in order to successfully remove NO_x, CO, and HC from exhaust gasses.

Regarding claims 9 and 10, Nunan further discloses the aluminum oxide as γ-Al_2O_3 (page 2, col. 1 lines 34-39) and the oxygen storage component as cerium (page 2, col. 1 lines 2-5).

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nunan ("Impact of Pt-Rh and Pd-Rh Interactions on Performance of Bimetal Catalysts") and Fujitani et al. (US 4,239,656) as applied to claim 7 above, and further in view of Anatoly et al. (US 6,387,338).

Regarding claims 11 and 12, modified Nunan discloses all of the claim limitations, but fails to teach the composition of the oxygen storage component.

Anatoly discloses oxygen storage materials.

Anatoly teaches an oxygen storage component with the composition of $Zr_{0.65}Ce_{0.25}La_{0.04}Y_{0.06}O_{1.95}$ (see Example 5) in order to enhance the phase stability under high temperature oxidizing and reducing conditions (see Brief Description of Fig. 14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the composition of Anatoly in the oxygen storage component of

Nunan in order to enhance the phase stability of the oxygen storage component under high temperature oxidizing and reducing conditions.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nunan ("Impact of Pt-Rh and Pd-Rh Interactions on Performance of Bimetal Catalysts") and Fujitani et al. (US 4,239,656) as applied to claim 7 above, and further in view of Suzuki et al. (US 6,335,305).

Regarding claim 13, modified Nunan discloses all of the claim limitations, but fails to teach the oxygen storage component has a stable cubic structure.

Suzuki also discloses a catalyst for purifying exhaust gas (see title).

Suzuki teaches an oxygen storage component with a cubic structure in order to maintain the structure even if a large amount of oxygen is discharged and since oxygen moves freely in the cubic structure, it shows excellent oxygen storage ability as compared to other structures (col. 6 lines 18-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the cubic structure of the oxygen storage component, as in Suzuki, in the oxygen storage component of Nunan in order to maintain the structure even if a large amount of oxygen is discharged and since oxygen moves freely in the cubic structure, it shows excellent oxygen storage ability as compared to other structures.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nunan ("Impact of Pt-Rh and Pd-Rh Interactions on Performance of Bimetal Catalysts") in view of Fujitani et al. (US 4,239,656) and Foster (US 5,857,140).

Regarding claim 25, Nunan discloses an exhaust treatment device (page 1, col. 2 lines 6-16), comprising:

a substrate (page 2, col. 2 lines 7-10);

a catalyst layer deposited on the substrate (page 2, col. 2 lines 7-10), the catalyst layer comprising a first catalyst metal (Pd) and a second catalyst metal (Rh) (page 3 col. 2, final paragraph); and

wherein the first catalyst metal and the second catalyst metal are different and are palladium and rhodium (page 3, col. 2, final paragraph), and an aluminum oxide (Al_2O_3, page 1, col. 2 'CATALYST FORMULATIONS') and an oxygen storage component (cerium, page 1, col. 2 'CATALYST FORMULATIONS').

Nunan fails to teach the average pore diameters of the aluminum oxide and oxygen storage component are in the range of 150Å – 1000Å and 50% to 80% of the pore volume is based on the volume of pores from 180Å – 800Å.

Fujitani also discloses a catalyst for purifying exhaust gases and a carrier for the catalyst (see title).

Fujitani teaches a catalyst support (γ-Al_2O_3, col. 10 lines 65-68) with an oxygen storage component (cerium, col. 10 lines 65-68) and an average pore diameter of 200Å (0.02 μm, col. 10 lines 65-68). Fujitani also teaches the pore

diameter to the pore volume distribution in Fig. 2 of this catalyst. It is clear to see from this graph, that 50% - 80% of the total volume comes from the pore with diameters in the range of 180Å – 800Å. Fujitani teaches this catalyst and structure this as a successful way of removing NO_x, CO, and HC from exhaust gasses (see Table 9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the catalyst support with the pore diameter and total pore volume to pore size distribution of Fujitani in the exhaust treatment device of Nunan in order to successfully remove NO_x, CO, and HC from exhaust gasses.

Nunan also fails to teach a retention material disposed around the substrate to form a subassembly and also a housing disposed around the subassembly.

Foster also discloses an exhaust gas treatment device (see Fig. 1)

Foster teaches a retention material (mat, (24)) in order to support the substrate (18) and prevent excessive heat loss (col. 1 line 64 – col. 2 line 5), and also teaches a housing (12) around the substrate and the retention material to improve the durability of the retention material (intumescent material, col. 1 line 64 – col. 2 line 5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the retention material and housing of Foster, to the exhaust treatment device of Nunan in order to support the substrate and prevent excessive heat loss and to improve the durability of the retention material.

Regarding the claimed feature of the percentage of 'non-alloyment under alloying conditions' there is no indication either in the claims or the specification that the prior art (Nunan) would not also contain this property. The process of making the claimed catalyst (according to the specification) is substantially identical to the prior art (Nunan, where Pd and Rh salts are slurried together and washcoated on the substrate, page 1, col. 2 'CATALYST FORMULATIONS') and it is reasonable to assume that it would contain the same "non-alloyment under alloying conditions' properties of the claimed invention. Something that is old does not become patentable upon discovery of a new property (see MPEP §2112).

Where the claimed and prior art product(s) are identical or substantially identical, or are produced by identical or substantially identical process(es) the burden of proof is on applicant to establish that the prior art product(s) do not necessarily or inherently possess the characteristics of the instantly claimed product(s), see In re Best, 195 USPQ 430.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is 571-272-9813. The examiner can normally be reached on Monday - Friday 8:30-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa D. Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MM

MJM

Alexa Neckel

ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER